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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JAIN, RAJ K	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/820,961	LI, SHAOLIN	
	Examiner	Art Unit	
	Raj K. Jain	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 1, 13 and 23 are objected to because of the following informalities: Remove "adapted to" from subject claims as this does not limit the scope of the claim.

Claim 13, insert "and" after "point;" and "compatibility;" in lines 16 and 18 respectively.

Claim 24, spell out "I/Q".

Claims 39, 41 and 43 replace "802.11" with "802.11x". Appropriate corrections are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5-28 and 31-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Sugar et al (US 2003/0203743 A1).

Regarding claim(s) 1, 13, 18, 23, 24, 27, 40, 44 and 45, Sugar discloses a radio frequency (R.F) multi-antenna access point system implemented in a single chip integrated circuit chip (Fig. 1) (IC) comprising: a baseband processor circuit located in a first portion of the single chip IC (para 30; a separate baseband section in a single chip)

the baseband processor circuit to handle data transmissions during a first operating mode in a channel between a first access point and a second access point (Fig. 9; para 68 first operating conducted between first and second access points as shown in Fig. 9 to receive or transmit appropriate signals); and

a multi-antenna signal processing circuit (Figs 1-4, 9, multi-antenna circuits) located in a second portion of the single chip IC for handling (600 interface is in second portion of IC chip interfacing with the radio transceiver sections of Fig. 1), the multi-antenna signal processing circuit to handle data transmissions during a second operating mode in said channel, said multi-antenna signal processing circuit being further adapted to: (a) receive M independent RF modulated input signals from said second access point (Fig. 9; M independent signals are received from 602, 604, 606 and 608; and (b) process said M independent RF modulated input signals using a channel mixing matrix to. extract N independent data signals transmitted by said second access point (Fig. 2, paras 39-41, RF mixers downconvert the incoming signals into appropriate I/Q baseband signals); wherein said first operating mode and said second operating mode are to be automatically selected by the RF multi-antenna access point system based on a transmission condition in said channel (paras 48-52, operating mode automatic based on transmission conditions of the radio transceiver circuits i.e. whether in receive mode or transmit mode).

Further with respect to claim 13, Sugar also discloses 802.11x protocol standard compatibility (para 66).

Regarding claim(s) 2, 28, Sugar discloses multi- antenna signal processing circuit includes an analog to digital converter, and a digital to analog converter for interfacing to an antenna (Fig. 2, 12).

Regarding claim(s) 5, 26, 31Sugar discloses wherein said multi-antenna signal processing circuit is to process-process at least 4 separate input signals representing a data stream multiplexed over 4 separate bit streams (Fig. 9).

Regarding claim(s) 6, 32, Sugar discloses baseband transceiver operation, while no explicit equation is provided however one skilled in the art will appreciate that basic signal processing can be equated to desired outcome values as necessary, and therefore the equation provided by applicant is one version but many other versions based on appropriate need can be arrived at as desired by a user.

Regarding claim(s) 7, 14-16 and 33, Examiner takes official notice that application of baseband transceivers can be readily applied to various access technologies such as TDMA, CDMA, AMPS and SDMA (see US 2003/0190927 A1).

Regarding claim(s) 8, 34, 17, Sugar discloses multi-antenna signal processing circuit is to extend a data transmission range that can be achieved by said baseband processor circuit between said first access point and said second access point (para 48).

Regarding claim(s) 9, 35, Sugar discloses multi-antenna signal processing circuit is to increase inc-r-eases a data transmission rate. that can be achieved by said baseband processor circuit between said first access point and said second access point (para 33).

Regarding claim(s) 10, 36, Sugar discloses multi-antenna signal processing circuit is to transmit M separate data signals to said second access point (Figs. 1-4, 9).

Regarding claim(s) 11, 37, 42, wherein a localized encryption is to be achieved for said second access point by independently controlling said M separate transmission signals (Examiner takes official notice the use of encryption is well known in the arts see US 2003/0190927 A1, and can easily be incorporated for security and protection).

Regarding claim(s) 12, 38, Sugar discloses first access point can be configured during a data transmission to transmit with an energy level which is substantially the same as a noise level to locations other than a localized region where said second access point is located (para 39).

Regarding claim(s) 19, Sugar discloses predetermined ratio combining (para 25, 26 and 67).

Regarding claim(s) 20, Sugar discloses wave beam transmission (see Figs. 1-4 and 9).

Regarding claim(s) 21, Examiner takes official notice the use of closed circuit television is well known in the arts and can easily be incorporated within Sugar to allow processing of multiple signals as appropriate.

Regarding claim(s) 22, Sugar discloses a receive sensitivity of said first access point is to be improved by selectively adding additional multi-antenna signal processing circuit modules for a data transmission and/or increasing M (Figs. 1-4, para 10, beam forming to increase or decrease antenna sensitivity).

Regarding claim(s) 39, 41, 43, Sugar discloses 802.11x compatibility (para 66).

Regarding claim(s) 46, Sugar discloses a modulator/demodulator circuit to be coupled to an antenna assembly and the multi-antenna signal processing circuit and baseband processor circuit; and a media access controller coupled to the multi-antenna signal processing circuit and baseband processor circuit and capable of, interfacing to a host computing system (see Figs. 1-4 and 11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar et al (US 2003/0203743 A1) hereinafter (743) as applied to claims 1 and 24 above, and further in view of Sugar et al (US 2004/0072546 A1) hereinafter (546). 743 fails to disclose the use of a FFT circuit and data frame alignment with an 802.11x data stream.

546 discloses use of a FFT circuit and data frame alignment with an 802.11x data stream (paras 44-48). FFT analyzers provide measurement of all frequency components at the same time at substantially faster speed than traditional analog spectrum analyzers.

Thus it would have been obvious at the time the invention was made to incorporate the teachings of 546 within 743 so as to improve the speed of spectrum analysis for various frequency components as desired.

Response to Arguments

Applicant's arguments with respect to claims 1-46 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raj K. Jain whose telephone number is 571-272-3145. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raj K. Jain
/Raj K. Jain/
Art Unit 2616

January 23, 2008